

## CLAIMS

What is claimed is:

1. A fire retardant adhesive tissue paper, comprising  
a tissue paper formed of a plurality of fibers;  
5 discontinuous thermoplastic adhesive disposed on one surface of the tissue  
paper; and  
flame retardant solids dispersed between the fibers of the tissue paper.
2. The fire retardant and adhesive tissue paper of claim 1, wherein the  
fibers are cellulose fibers.
3. The fire retardant and adhesive tissue paper of claim 2, wherein the  
10 paper has a porosity between 60 to 90 ft<sup>3</sup>/min/ft<sup>2</sup>.
4. The fire retardant and adhesive tissue paper of claim 1, wherein the  
thermoplastic adhesive is randomly dispersed on the one surface of the tissue paper.
5. The fire retardant adhesive tissue of claim 1, wherein the thermoplastic  
15 adhesive is dispersed on the one surface of the tissue paper in a geometric pattern.
6. The fire retardant adhesive tissue paper of claim 4, wherein the  
thermoplastic adhesive is in the form of dots.
7. The fire retardant adhesive tissue paper of claim 5, wherein the  
thermoplastic adhesive is in the form of dots.
- 20 8. The fire retardant adhesive tissue of claim 7, wherein the dots are  
applied in a geometric pattern.
9. The flame retardant adhesive tissue paper of claim 8, wherein the dots  
are sized between about 500 to 550 microns.

10. The flame retardant adhesive tissue paper of claim 1, wherein the thermoplastic adhesive covers between about 8 to 15 percent of the ~~one surface~~ of the tissue paper.

5 11. The fire retardant adhesive tissue paper of claim 1, wherein the fire retardant is present in the tissue paper in amounts between ~~about~~ 1.7 to 8.5 g/m<sup>2</sup> (0.05 to 0.25 oz/yd<sup>2</sup>).

12. The fire retardant tissue paper of claim 1, ~~wherein~~ the polymer adhesive is present in amounts between about 5.1 and 8.5 g/ m<sup>2</sup> (0.15 and 0.25 oz/yd<sup>2</sup> ).

10 13. The fire retardant adhesive tissue paper of claim 1, wherein the thermoplastic adhesive is polyester.

14. A method for preparing a flame retardant adhesive tissue paper, comprising:

providing a length of tissue paper;

15 providing an aqueous dispersion of an inorganic flame retardant and powder thermoplastic adhesive resin;

depositing the aqueous dispersion of flame retardant and thermoplastic resin on one surface of the tissue paper;

drying the coated tissue paper to remove the water from the aqueous dispersion;

20 increasing the temperature of the coated tissue to activate the thermoplastic resin to adhere to the surface of the tissue paper; and

cooling the coated tissue paper.

15 15. The method of claim 14, ~~including~~ by transporting the tissue paper over rollers and continuously applying the aqueous dispersion to the surface of the tissue as the tissue is transported.

25 16. The method of claim 15, wherein the amount of dispersion applied to the surface of the tissue is controlled by adjusting the line speed of the moving tissue.

17. The method of claim 14, wherein the tissue with aqueous dispersion is dried by passing the tissue through an oven to heat the tissue.

18. The method of claim 14, wherein the step of depositing the aqueous dispersion includes applying the dispersion by a doctor blade.

19. The method of claim 14, wherein the step of depositing the aqueous dispersion includes depositing the dispersion in spots.

20. The method of claim 19, including depositing the spots in a pattern.

21. An aqueous dispersion of inorganic flame retardant and powder thermoplastic adhesive.

22. The aqueous dispersion of claim 21, further including a thickener for adjusting the viscosity of the dispersion.

23. The aqueous dispersion of claim 21, wherein the dispersion includes about 40 to 60 weight percent solids.

24. An apparatus for preparing a fire retardant adhesive tissue paper, comprising:

a tissue paper supply feeder;

a tissue paper feeders for feeding the uncoated tissue paper;

a coating head for depositing an aqueous dispersion of an inorganic flame retardant and powder thermoplastic adhesive on to one surface of the transported tissue paper;

a first heater for drying the paper coated with the aqueous dispersion to remove water therefrom;

a second heater for increasing the temperature of the coated tissue to active the thermoplastic resin;

a cooling station for cooling the coated tissue paper.

[illegible]